

Item 431-J-15

Cooperative Research and Development Agreement With the Water Quality Association

Evaluation of Ion Exchange Softening and Corrosiveness of Drinking Water

Participants

This Cooperative Research and Development Agreement (CRADA) brings together the Water Quality Association (WQA), a nonprofit trade association for the point-of-use water treatment industry in Lisle, IL, and the U.S. Environmental Protection Agency's (EPA) Risk Reduction Engineering Laboratory (RREL) in the Office of Environmental Engineering and Technology Demonstration, Office of Research and Development.

Purpose

This CRADA was developed for RREL to conduct a pilot plant study to evaluate whether household ion exchange softening systems increase the corrosiveness of drinking water resulting in an increase in lead, copper, and other heavy metals in tap water.

Background

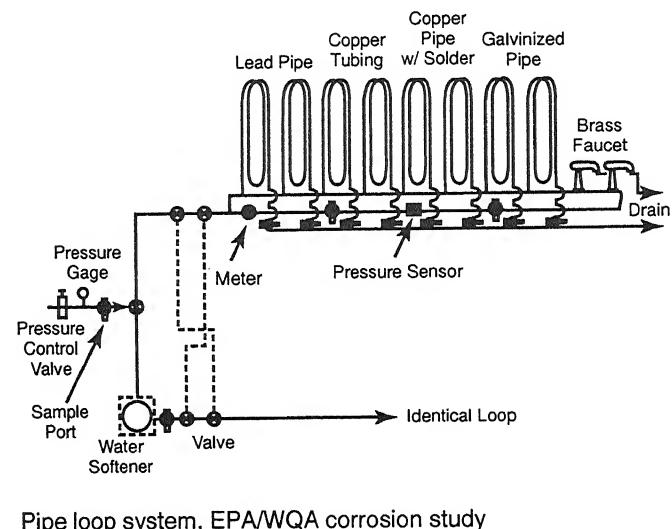
The general goal of this project is to determine if domestic water softeners increase corrosion by-products in ~~household plumbing~~ systems. RREL and WQA will conduct on two test waters at the City of Cincinnati's

exchange softener and pipe loop system, and a second containing only a pipe loop system.

Results

The lime-soda-finished water pilot system was started on November 12, 1992, and has operated continuously for approximately 16 months. At the end of February, this phase of the study was closed down. Preliminary results of this test suggest that ion exchange softened water does not increase corrosiveness of water, although no conclusion can be firmly drawn until the final report is completed.

The raw water pilot system was started on May 17, 1993 and operated until December 1, 1993, when it was shut down because of a manganese precipitation problem in the control loops. All pipe-loops from this system were removed and transported to the EPA research center for surface examination and analysis. New pipe-loops have been constructed and installed on the test system racks. All connecting fittings of the control (unsoftened) test systems were cleaned to remove the manganese coating. Two manganese removal tanks were installed in early January, 1994 in parallel in the raw water



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line to remove the manganese from the test water. This system is being evaluated to verify that the manganese removal and softening components are fully functional prior to carrying on the study. The testing program began after several weeks of pretesting without the pipe loops connected.

This is one of more than 50 cooperative research and development agreements EPA has with U.S. businesses, consortiums, trade associations, academic institutions and state and local governments under the Federal Technology Transfer Act of 1986. These agreements serve as a mechanism for EPA to work with private industry to develop new pollution prevention and control technologies and efficiently bring them into the marketplace.

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